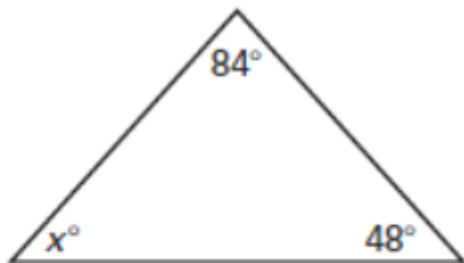


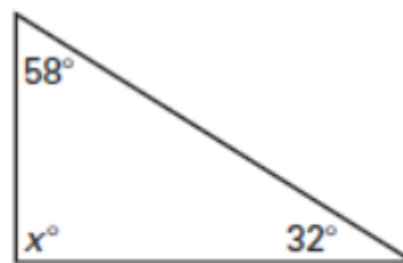
# Daily Math:

Find the value of  $x$ .

1.



2.





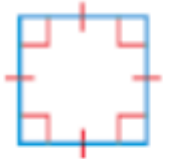


Classify the triangles by the lengths of its sides.

3. 10 cm, 5 cm, 10 cm

4. 10 cm, 4 cm, 12 cm

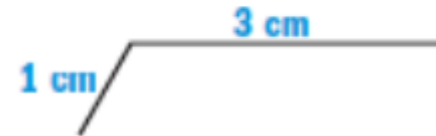
A **quadrilateral** is a geometric figure that is made up of four line segments, called sides, which intersect only at their endpoints.

<b>Special Quadrilaterals</b>		
Trapezoid		A <b>trapezoid</b> is a quadrilateral with exactly 1 pair of parallel sides.
Parallelogram		A <b>parallelogram</b> is a quadrilateral with 2 pairs of parallel sides.
Rectangle		A <i>rectangle</i> is a parallelogram with 4 right angles.
Rhombus		A <b>rhombus</b> is a parallelogram with 4 congruent sides.
Square		A <i>square</i> is a parallelogram with 4 right angles and 4 congruent sides.

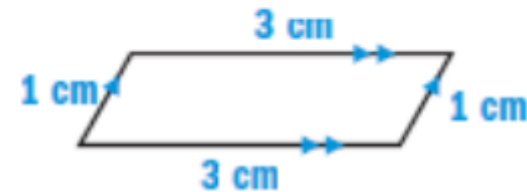
## EXAMPLE 1 Classifying a Quadrilateral

Sketch and classify a quadrilateral with opposite sides parallel, one side of length 3 centimeters, and another side of length 1 centimeter.

**STEP 1** Draw two sides, one of length 3 centimeters and one of length 1 centimeter. The angle between the two sides does not matter.



**STEP 2** Draw sides parallel to the first two sides to complete the figure.



► **Answer** The figure is a parallelogram.

1. A quadrilateral has 4 right angles, 4 congruent sides of length 2.5 centimeters, and both pairs of opposite sides parallel. Classify the quadrilateral. Then use a ruler and a protractor to draw it.

**Polygons** A **polygon** is a geometric figure that is made up of three or more line segments that intersect only at their endpoints. The number of sides determines the name of the polygon.

## KEY CONCEPT

*For Your Notebook*

### Classifying Polygons

**Triangle**



**Quadrilateral**



**Pentagon**



**Hexagon**



**Heptagon**



**Octagon**



## EXAMPLE 2 Classifying Polygons

Tell whether the figure is a polygon. If it is, classify it. If it is not, explain why not.

a.



b.



### SOLUTION

a. This figure is not a polygon because it is not made up entirely of line segments.

b. This figure is a polygon with 5 sides. So, it is a pentagon.



### GUIDED PRACTICE for Example 2

Tell whether the figure is a polygon. If it is, classify it. If it is not, explain why not.

2.



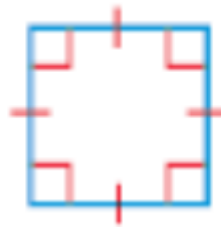
3.



4.



**Regular Polygons** A *regular polygon* is a polygon with all sides equal in length and all angles equal in measure. Matching angle marks indicate that the angles are congruent. The figures below are examples of regular polygons.



$$180 \times (n-2) = \text{Total degrees}$$

$n$  = the number of sides that the polygon has.

You can draw *diagonals* to divide polygons into triangles to find the sum of the measures of their angles. A **diagonal** of a polygon is a segment, other than a side, that connects two vertices of the polygon.

### EXAMPLE 3 Using a Regular Polygon

The polygon shown is a regular pentagon. Find the perimeter of the pentagon. Then find the sum of the angle measures in the pentagon.

- ▶ A regular pentagon has 5 sides of equal length, so the perimeter of the pentagon is  $5(3) = 15$  feet.
- ▶ A pentagon can be divided into three triangles. The sum of the angle measures in a triangle is  $180^\circ$ , so the sum of the angle measures in any pentagon is  $180^\circ + 180^\circ + 180^\circ = 540^\circ$ .



**5. What If?** Suppose a polygon is a regular octagon with a side length of 5 feet. What is the perimeter of the octagon? What is the sum of its angle measures?



# Homework:

p. 531-532

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